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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,198	11/17/2003	Hung Van Nguyen	79-03A	4124

23713 7590 02/22/2006

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4875 PEARL EAST CIRCLE  
SUITE 200  
BOULDER, CO 80301

EXAMINER
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CINTINS, IVARS C

ART UNIT	PAPER NUMBER
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1724

DATE MAILED: 02/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/716,198

Applicant(s)

NGUYEN ET AL.

Examiner

Ivars C. Cintins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-39 and 44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-39 and 44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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The newly added claim, improperly identified as claim 40, has been renumbered as claim 44, in accordance with 37 C.F.R. § 1.126.

The Terminal Disclaimers filed December 1, 2005 have been entered and have been approved. Accordingly, the obviousness-type double patenting rejections contained in the previous Office Action are hereby withdrawn.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 8, 10-17, 19, 20, 22-33, 35-39 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jowett et al. (U.S. Patent No. 4,154,675) in view of Weiss et al. (U.S. Patent No. 3,560,378). As pointed out in the previous Office action, Jowett et al. discloses removing organic carbon from water by dispersing an ion exchange resin into the water, separating the resin from the resultant mixture, and regenerating the resin with brine for reuse (see col. 11, lines 57-60; and col. 12, lines 13-15). This reference further discloses that the water can be subjected to additional treatments of the type recited (see col. 7, lines 42-44; and col. 8, lines 28-30). Accordingly, Jowett et al. discloses the claimed invention with the exception of the use of magnetic ion exchange resin particles. Weiss et al. discloses magnetic ion exchange resin particles of the type recited; and it would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the magnetic ion exchange resin particles of the secondary reference for the ion exchange resin particles of the primary reference, in order to enable separation of the resin from the treated water by magnetic means.

Claims 7 and 18 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Jowett et al. and Weiss et al. as applied above, and further in view of Carlson et al. (U.S. Patent No. 4,670,154). As pointed out in the previous Office action, the modified primary reference discloses the claimed invention with the exception of the recited vacuum collection step. Carlson et al. teaches (col. 3, lines 19-22) that it is known to transfer ion exchange resins utilizing a vacuum generating device. It would have been obvious to one of ordinary skill in the art at the time the invention was made to transfer the resin of the modified primary reference in the manner taught by Carlson et al., in order to obtain the advantages disclosed by this secondary reference for the system of the modified primary reference.

Claims 9 and 21 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Jowett et al. and Weiss et al. as applied above, and further in view of Corne et al. (U.S. Patent No. 1,190,863). As pointed out in the previous Office action, the modified primary reference discloses the claimed invention with the exception of the recited tilted plates. Corne et al. discloses (see Fig. 9) a settling tank having a series of tilted plates. It would have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the settling tank of the secondary reference for the settler of the modified primary reference (see col. 8, line 30 of Jowett et al.), since this secondary reference settling tank is capable of separating solids from a liquid in substantially the same manner as the settler of the modified primary reference, to produce substantially the same results.

Claim 34 is again rejected under 35 U.S.C. 103(a) as being unpatentable over Jowett et al. and Weiss et al. as applied above, and further in view of Bacchus et al. (U.S. Patent No. 6,110,375). As pointed out in the previous Office action, the modified primary reference

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discloses the claimed invention with the exception of the recited membrane treatment. Bacchus et al. teaches purifying water with an ion exchange resin, and subsequently subjecting the water to a treatment by a membrane filter (see col. 2, lines 50-60). It would have been obvious to one of ordinary skill in the art at the time the invention was made to subject the ion exchange resin treated water of the modified primary reference to a membrane filtration treatment, as suggested by Bacchus et al., in order to further purify this water.

Applicant's arguments filed December 1, 2005 have been noted and carefully considered but are not deemed to be persuasive of patentability. Applicant argues that one skilled in the art would not read Jowett et al. as a process for treating water for domestic use unless the impurities intended to be removed were fats, carbohydrates and/or proteins. This argument is not deemed to be persuasive of patentability for the claims in this application because: (1) these fats, carbohydrates and/or proteins are deemed to be types of "organic carbon" and are therefore not excluded by the scope of the claims; and (2) Jowett et al. clearly discloses that many other types of dissolved organic materials (see col. 3, lines 46-56) may be removed by the disclosed process.

Applicant also argues that Weiss et al. only discloses resins which adsorb inorganic compounds, and does not teach or suggest that the resin is capable of adsorbing dissolved organic compounds. Again, this argument has been noted and carefully considered, but is not deemed to be persuasive of patentability. It is pointed out that the teaching of removing dissolved organic compounds with an ion exchange material is clearly provided by Jowett et al. Since the ion exchange resins of Weiss et al. also contain ion exchange groups, one of ordinary skill in the fluid purification art would readily recognize that these secondary reference ion exchange resins would be capable of removing the polyelectrolytes and other large ions of the

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primary reference (see col. 4, lines 10-15 of Jowett et al.) from water in substantially the same manner as the ion exchange material of this primary reference, to produce substantially the same results.

Applicant also argues that it would not be obvious to substitute the ion exchange resins of Weiss et al. for the ion exchange material of Jowett et al. because these secondary reference resins are more highly crosslinked than the cellulosic material of the primary reference. Once again, this argument has been noted and carefully considered, but is not deemed to be persuasive of patentability. Initially, it is noted that although Applicant argues that the Weiss et al. patent discloses ion exchange resins which are more highly cross-linked than those described in Jowett et al., Applicant has not pointed to any specific portion of this patent which discloses the exact degree of crosslinking for these secondary reference resins. In any event, Jowett et al. cautions against crosslinking cellulose to an extent greater than 10% because such additional crosslinking would reduce the extent to which the ion exchange groups of the cellulose would be accessible (see col. 4, lines 6-15). Since the material of the secondary reference is not cellulose, its available ion exchange groups would not appear to be adversely affected by any possible greater degree of crosslinking.

With respect to Carlson et al., Applicant argues that it would not have been obvious to utilize a venturi-type vacuum device to collect magnetic resin because the physical properties of a magnetic resin are likely to be different from that of a non-magnetic resin. It is pointed out, however, that although the properties of the two types of resins may be different, a vacuum device would still be capable of transferring these resins from one location to another.

With respect to Corne et al., Applicant argues that it would not have been obvious to utilize a plate-type settling device to collect magnetic resin because the physical properties of mud are different from that of magnetic resin. It is pointed out, however, that although the properties of the two types of materials may be different, a tilted plate settling tank would still be capable of separating magnetic resins from a liquid undergoing treatment.

With respect to Bacchus et al., Applicant argues that it would not have been obvious to combine the teachings of this reference with the system of Jowett et al. because the post-ion exchange fluid of the primary reference is not sufficiently pure to be subjected to membrane filtration without immediately fouling the membrane. It is pointed out, however, that since the primary reference clearly discloses that its process can be used to purify water “for domestic use” (see col. 4, line 3), it is unlikely that such water would immediately foul a filtration membrane.

Rock (U.S. Patent No. 4,049,546) and Kawabata et al. (U.S. Patent No. 4,303,531) disclose techniques for removing dissolved organic contaminants from liquids with ion exchange resins. Marchessault et al. (U.S. Patent No. 5,143,583) discloses producing a magnetic cellulosic material.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period


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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to I. Cintins whose telephone number is 571-272-1155. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Duane Smith, can be reached at 571-272-1166.

The centralized facsimile number for the USPTO is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
**Ivars C. Cintins**  
**Primary Examiner**  
**Art Unit 1724**

I. Cintins  
February 20, 2006